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ABSTRACT

The goal of an introductory graphics course is fundamental visual literacy, which includes learning to appreciate the power of visuals in communication and to express ideas visually. Traditional principles of design--the focus of the course--are based on more fundamental gestalt theory, which relates to human pattern-seeking behavior, particularly how the eye tends to group parts into wholes. Just as verbal communication is governed by rules of grammar, graphic expression is governed by the gestalt principles of similarity and contrast, attraction and continuity, and isomorphism, the basis of symbolism. A visualization strategy should begin with the search for a lead that will dominate the design and then continue with three or four elements used in such a way as to create an overall harmony, or gestalt. Two exercises are given: an abstract layout demonstrating the importance of spatial organization and a logo design using one letter that focuses attention on the shape of space. The simplicity and universality of gestalt makes its use relevant to teaching creativity, and its integration of the visual and verbal aspects of messages enhances the effectiveness of total communication. Two class exercises are provided, as well as a brief bibliography and a list of textbooks surveyed. (SRT)

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A CONTENT-DRIVEN APPROACH TO VISUAL LITERACY:

GESTALT REDISCOVERED

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"The cultural and global force of film, photography, and television in the shaping of man's image of himself defines the urgency for teaching visual literacy to both communicators and constituents. In 1935, Moholy-Nagy, the brilliant Bauhaus master, said 'the illiterate of the future will be ignorant of pen and camera alike.' The future is now. The dramatic potential of universal communication implicit in visual literacy awaits broad, gauged development."

-- Donis A. Dondis, 1973

ABSTRACT:

A CONTENT-DRIVEN APPROACH TO VISUAL LITERACY:

GESTALT REDISCOVERED

This paper proposes an approach to the teaching of introductory visual communications that is designed to achieve two goals of visual literacy: the abilities to appreciate the power of visuals and to express ideas visually. It assesses the way the basics of design are taught, in part through an informal survey of textbooks. Some critical observations are made, among them that the gestalt theory on which many perceptual assumptions, including the traditional principles of design, are based is often ignored. Gestalt theory relates to human pattern-seeking behavior: in vision, how the eye tends to group parts into wholes. Here it is used as the basis for a definition of visual syntax that is aimed at verbally oriented communications students. The gestalt principles of similarity, attraction and continuity are used to develop a content-driven visualization strategy and a set of layout guidelines. Two class exercises are offered.

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Visual literacy appears to be a hot term in visual communications education. Two of its goals have been stated, broadly, as instilling in students an appreciation for the roles and power of visual communication in modern media, and the ability to express ideas visually. The author of this paper finds these goals admirable, but lacking clues as to how they can be met in the classroom. An informal survey of textbooks does not reveal a consistent approach even to the basics of design, nor is it suspected that professors share one.

Dondis, in A Primer of Visual Literacy, says, "To be considered verbally literate, one must learn the basic components of written language: the letters, words, spelling, grammar, syntax .... Visual literacy must operate somewhat within the same boundaries .... Its purposes are the same as those that motivated the development of written language: to construct a basic system for learning, recognizing, making, and understanding visual messages that are negotiable by all people .... Inevitably, the final concern of visual literacy is the whole form, the cumulative effect of the combination of selected elements, the manipulation of the basic units through techniques and their formal compositional relationship to intended meaning." (pp. x, xi)

Gestalt theory relates to the whole form. Popularly defined, it says the whole is greater than the sum of its parts. Gestalt goes much further as a psychological discipline whose percepts can be applied to one's world-view, even to therapy, but this paper shall focus on its perceptual foundations. As a first step toward the goal of visual literacy, this paper proposes a teaching approach to one aspect of the introductory graphics course: the theoretical foundation for understanding the way design works. Based on the maxim that form should follow function, it suggests a content-driven visualization strategy that incorporates gestalt theory in a more direct manner than is traditional. It presents a simplified definition of gestalt applied in guidelines and exercises for beginning graphics students.

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TEACHING OBJECTIVES

The overriding goal of communication is, of course, to achieve understanding. Form should follow function in any communications endeavor. Thus the teaching objective is for students to understand that the message should be expressed in whatever form is relevant to its purpose and content; that the creative process be content-driven.

If we can assume that most communications students expect to communicate verbally, then the objective of the graphics course is to extend their verbal skills into the visual realm. Thus the teaching approach should be one to which verbally oriented students can relate; one that inspires them to express the message in both verbal and visual form, simultaneously. Introductory writing courses are strongly geared toward discipline in conceptualization and format, as graphics courses should be in many respects. But these writing courses often do not encourage concomitant visualization nor even, in some cases, visualization at all. As Dondis suggests, the approach suggested here is based on a verbal analogy.

This paper addresses only the basics of design in the introductory graphics course with an eye to achieving fundamental visual literacy. Considering that other course objectives will lead to discussions of specific layout elements such as type, of design for various media, and of production technologies, as well as the assignment of hands-on exercises, it should be evident that a teaching approach to the basics should be developed that is both parsimonious and as universally applicable as possible.

TRADITIONAL APPROACHES TO TEACHING DESIGN

Assuming that design is based on perceptual behavior common to all humans, it would seem natural that there would be some agreement on the fundamental way design works. This writer made an informal survey of 13 communication graphics textbooks (listed at the end of this paper). Some of these are intended to be

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introductory texts primarily for print media, while others specialize in one communications field or another.

Most texts agree that "design" refers to some purposeful plan of action that can apply to any activity, in this case graphic. Eight books describe "principles of design," including balance, proportion, contrast, dominance (emphasis, focus), harmony (consistency, unity, coherence), and flow (sequence, rhythm, movement, direction). The number of principles named varies from five in Book & Schick, Hurlburt in Layout, Moen, and Nelson, to nine in Crow. "Design" is a broader, more conceptual term than "layout," which refers to the process of arranging elements on paper or screen. The "elements" of layout include type, art and space. Up to nine elements are named in various texts, generally as a result of breaking "type" into several categories. For example, Book & Schick list typeface, body copy, headline, slogan, logo and price for advertising matter; and Crow lists nameplate, standing heads, regular heads and body type for editorial matter.

One point this paper seeks to make is that the traditional principles actually are based on more fundamental gestalt principles. Five of the 13 books surveyed -- Berryman, Conover, Crow, Hurlburt in Layout and Turnbull & Baird -- mention gestalt theory. Berryman is the only author who both describes gestalt in detail and also applies it to typographic design. Berryman, Conover, and Turnbull & Baird list "components" (or ingredients, elements, vocabulary) of visual forms such as point and line that are germane to gestalt theory. Berryman, Crow, and Turnbull & Baird discuss levels of meaning from concrete to abstract that are inherent in gestalt psychology.

Several criticisms can be made. Obviously the texts offer different interpretations of terms like "principle" and "element." More important, they tend to concentrate on traditional principles such as balance while ignoring the more basic gestalt principles on which many perceptual assumptions are based. Some do not list the vital concept of contrast. The functioning of design principles is

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not clearly related to real-world perception. Elements of layout (type, art) are presented before or without descriptions of components of visual forms (point, line). "Positive" elements that contain content -- type and art -- are rightfully favored, but the very powerful "negative" element of space is neglected. Type and art are supposed to be assembled in layouts, but without a clear discussion of the effects of a whole layout on the reader. A "shopping list" of layout formats may be presented that invites the student to "plug in" to them without due consideration to conceptual development. Design is sometimes reduced to formulas, such as advertising's AIDCA (Attention, Interest, Desire, Conviction, Action), that are better used as tests for good design, not inspiration. Finally, as these texts expand from the basics of design into discussions of graphics for various media, they diverge even further in their descriptions of layout, creative approaches, and visual formats. In this paper, gestalt theory is used to present the basics of design in a more unified, usable fashion.

GESTALT DEFINED

In 1912 German psychologist Max Wertheimer is credited with applying the term "gestalt," which translates loosely into English as "shape" or "form," to the concept of any configuration of elements that forms a unified whole. Wertheimer and his two students, Wolfgang Kohler and Kurt Koffka, became the founders of the discipline of gestalt psychology. They were influential in Germany before the First World War; when they came to the United States in the 1920s and 1930s they established themselves in top academic positions. The peak of their influence was during the 1950s, after which we can trace the gestalt influence into several evolving disciplines, including cognitive psychology.

In general, gestalt psychologists were intrigued by the phenomenon that people are able to make sense of and operate in a world of infinite variety and change. They found that people tend to seek patterns, to form "gestalts" or unified wholes from the parts that are available to vision and the other senses. This idea established perception as more than just physical -- it positioned it

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as a dynamic creative experience. Because the earliest experimental verification of gestalt theory was visual, its findings still form a valuable foundation for visual communication.

Gestalt theory says, first, that the parts of a visual image can be considered as distinct components and, second, that the whole of the visual image is different from and greater than the sum of its parts. In a simplified version, the theory offers three fundamental visual principles: similarity, attraction and continuity. Similarity refers to the perceived relationship of elements that share attributes such as size and shape, or elements that are visually consistent. Attraction means that elements will appear to be related if they are positioned close together, or are proximate. Continuity says that elements will appear to be related if they form a continuous line, or are aligned. From these principles we can extract a visualization strategy and layout guidelines that will help to integrate the elements of any layout into a cohesive whole. Key design concepts intrinsic to gestalt theory include the components of visual forms, contrast, figure/ground, closure, and isomorphism.

VISUAL SYNTAX: AN ANALOGY

Parts and wholes exist on a continuum in any discipline. Just as verbal elements such as words are combined to form sentences, so visual elements such as pictures are combined to form layouts. This suggests a verbal analogy for visual design, as shown below:

	PART			WHOLE
	COMPONENT	VOCABULARY	SYNTAX	MESSAGE
VERBAL	character, punctuation →	word, number →	sentence, paragraph →	story, copy
VISUAL	point, line, shape →	type, art, space →	layout →	design

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Given this analogy, the student should begin to realize that: (1) Verbal and visual expression share parallel structures. The meaning of any arrangement of elements depends on its syntax, a set of rules for the structure of meaningful, functional wholes. In verbal expression, the rules are grammatical; in visual expression they are based on gestalt principles. Graphics should be no more difficult to understand than writing. (2) Writing is visual at any and every stage. A period is a point. A paragraph is a visual unit. A period or a story can be a layout element. Writing and visualization should be inseparable, simultaneous.

Two more points can be made from this analogy: (3) Creativity begins on the "whole" side; mechanical skills on the "part" side. The idea precedes the execution. To those who are intimidated by the prospect of "drawing," a thumbnail sketch requires no more mechanical skill than a story outline for conceptualization purposes. (4) Gestalt exists at every level. Wholes at every level consist of parts and contain meaning. Even a point contains the meaning of its location. The ultimate goal of communication and the ultimate gestalt are the same: understanding meaning.

VISUAL GESTALT PRINCIPLES

SIMILARITY, the perceived relationship of elements that are visually consistent, is the strongest, most insistent principle. Visual consistency derives from likenesses in the components (point, line, shape) or attributes (tone, texture, size, color, direction) of visual forms or figures. In order for a layout to achieve harmony, all its elements must be visually consistent and necessary in some way.

Even more important to the MEANING of design, however, is the opposite of consistency: CONTRAST. "All meaning exists in the context of polarities," Dondis says. "Would there be understanding of hot without cold, high without low, sweet without sour?" ... In the process of visual articulation, contrast is a vital force in creating a coherent whole." (p. 85) In layout, one element should

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dominate; just as in writing, one idea should form the lead. The visual "lead" should be larger, darker, or different in some other way.

Contrast also contributes to the FIGURE/GROUND concept, which is so fundamental that it is often overlooked. "In visual literacy," Dondis points out, "the importance of meaning in contrast begins at the base level of seeing or not seeing at all through the presence or absence of light." (p. 86) Visibility is dependent on tonal contrast. No figure exists without ground. The ground defines the figure. This may seem obvious until one examines the many examples of poor typographic legibility in which an infatuation with, say, color has superseded attention to tonal contrast.

Because gestalt is based on the natural tendency to compare, contrast contributes to the spontaneity of design, to its dynamics. The traditional principles of balance and proportion depend on comparing or contrasting equal or unequal shapes.

The gestalt principles of ATTRACTION and CONTINUITY, where proximate and aligned elements appear to be related, are important to the control of SPACE in design, which in turn contributes to meaning and flow. Textbooks often devote little attention to space as a layout element because it seems to be difficult to define and more difficult to control. It is, however, vital to gestalt, and easy to control with the help of proper layout tools.

In gestalt theory, ground or space defines not only the individual figure, but also the dynamic relationships of figures to each other. Figures that are joined by small spaces, especially if the spaces are consistent in size, and figures that are aligned, or positioned in smooth lines or curves in space, will draw the eye through a design. The closer this visual FLOW is to the natural top-left-to-bottom-right pattern of reading, the greater the readability of the design. The eye is remarkably sensitive to tiny spatial inconsistencies, as is evident in typography. Spaces can also break the flow: if they are medium, they

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can be used for pauses or "punctuation"; if they are very large, they are best pushed to the outside, to form a frame or margins.

Continuity also contributes to CLOSURE, the natural tendency to prefer closed or continuous figures and to complete unfinished forms. Closed figures, such as a drop of water or a flower, are more natural, more stable. Closure is especially valuable to typography, where many characters must aggregate into word- and phrase-forms, and where logos should be stable, distinctive figures. Wertheimer describes the quality of "goodness" in psychological organization. "Good" figures embrace properties of closure, stability, simplicity and regularity. (Koffka, p. 110) Figures that are open or directional, on the other hand, can be used to influence reading flow with their own internal energy.

Gestalt relates to every kind of expression and representation, concrete to abstract. It includes the phenomenon of ISOMORPHISM, wherein the image of one item, such as a snake, triggers psychological and physical responses in the viewer. It is the basis for symbolism. All sorts of relationships and values are implied spatially and symbolically (and sometimes inaccurately) in editorial and advertising designs. The successful, sophisticated creative thinker lets parts stand for wholes; uses the gestalt phenomena of closure and isomorphism to let readers complete unfinished shapes or ideas.

Hurlburt addresses the broad significance of visual gestalt in communication design: "It is our ability to gather and group visual patterns, to view units collectively, that permits us to accept the printed page as a total unit," he says. "It is this phenomenon of perception that creates the need for design solutions that bring together all the elements in a total concept. The Gestalt principles not only explain how we combine sensory data to form objects, but they also hint at why we accept the illusion of tone created by halftone dots, the simplified form of cartoon art, the meaning of symbols, and the intrigue of abstraction. ... The experiments of the Gestalt psychologists also confirmed

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that words and word groupings were more important to typographic legibility than were the form and shape of individual letters." (Layout, pp. 136-7).

At whatever level, gestalt relates to our compulsion to seek harmony, organization -- to try to fit parts into wholes. Conversely, the spice of life is in the parts that don't fit. Gestalt is the context, the consistent organization of concepts, in which contrast contains the meaning. It can be said that just as no figure exists without ground, so no concept exists without context.

VISUALIZATION STRATEGY, GUIDELINES

Gestalt principles suggest a visualization strategy that should begin, as in writing, with the search for a lead. The lead, e.g. a photo, should dominate the layout through contrast of its components or attributes, such as shape or size. For simplicity and clarity, use only three or four elements or element groups. Express relationship among elements through proximity and alignment. Use the internal direction of elements along with control of space to render a smooth reading flow. Overall gestalt, or harmony, will depend on the consistency of all elements, including the lead element, based on components or attributes such as texture or color. Choose elements and develop their spatial relationships through the use of thumbnail sketches. As the layout is refined to a reproducible stage, take care that tonal contrast is sufficient for legibility.

The following guidelines are recommended for class critiques and lecture discussions. The first three are based on the gestalt principle of consistency; the last three on the principles of attraction and continuity.

LAYOUT GUIDELINES

1. All elements should be visually consistent and necessary.
2. One element or element group should dominate and lead the layout.
3. Tonal contrast should be strong for typographic legibility.
4. Spaces should be consistently narrow between related elements, with large spaces usually on the outside.
5. Every element should be aligned with another element or with a margin.
6. Reading flow should be smooth and natural, beginning at upper left.

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EXERCISES

The following exercise is best given at the beginning of the introductory graphics course, preceding any lecture on design, to get a sense of students' preexisting notions and skills:

> ABSTRACT LAYOUTS: Give each student three sheets of construction paper: white, gray and black. Divide class into halves: half to do "stable," the other half "unstable" layouts. Instructions: Cut black and gray sheets each into nine equal pieces. Choose just three or four pieces, in any combination of gray and black. Arrange pieces on white paper to form a "stable" (or "unstable") ABSTRACT layout. Pieces may touch or overlap. Tape or cement pieces to white sheet. Time: about 15 minutes.

When layouts are done, tape them to the wall and lead a class discussion. The first impression will be of the wide variety in the layouts, and the sense that some are more "comfortable" than others. Which are the most successful at conveying a sense of stability or instability? Assess and compare layouts on the basis of the contributions that similarity, proximity and alignment of shapes make to their gestalts. How does control of space contribute to the effect? Is a unified visual flow evident? Do some designs seem to represent familiar objects? How does our reaction to design resemble our reaction to the physical world?

Let students discover the energies that exist in simple shapes and layouts. Some will find it difficult not to form or see familiar objects; they may be uncomfortable with working in the abstract. Some will exhibit an innate sense of the function of space. Most will contribute to the discussion because abstraction reduces self-consciousness. Share examples of ambiguous figures used in gestalt experiments, and of appropriate advertising and editorial layouts. Leave them with a sense of the importance of thinking carefully about the effects of placing elements in a layout; with the power of spatial organization.

The second exercise should follow a lecture on gestalt in logo design supported by examples of logos and results of this exercise:

> LETTERFORM: The first letter of the student's first or last name, upper or lowercase, is his or her assigned letterform. Instructions: choose a type style suitable to your personality or preference. Trace or draw your initial four times to form a square or rectangular configuration in which the spaces between

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the letters join to form a distinct shape. Letterforms can touch one another but cannot overlap. Assess the design and alter the form of the basic character, if necessary, in order to create a design with a close gestalt and about a 50/50 figure/ground ratio. The final design should be 4 to 5 inches square. Render it in black ink, centered on a sheet of typing paper (8-1/2 x 11 inches). Start in class; due in one week.

This exercise forces an abstraction of a familiar shape. By focusing attention on the shape of space, it emphasizes the contribution that space makes to design. It also is a good introduction to functional logo design, wherein the closer the design is to a 50/50 figure/ground ratio, the more visible and reducible the result. It develops familiarity with the personalities and moods of various typefaces, and in general builds confidence in visualization and execution processes.

Students tend to approach this exercise thinking it will be ridiculously easy, and end up working very hard to create a design that they find aesthetically pleasing. A class critique of results, taped on the wall, brings more compliments than criticism. Even the mundane designs are attractive because they demonstrate consistency, proximity and alignment. Last semester one student eliminated the outline of her initial, an "L," entirely, and presented only a symmetrical arrangement of four black boxes representing "L" spaces. Another came by during office hours to discuss using his letterform in a personal letterhead design. Still another noted later that the space inside the "Y" in the Playboy logo forms an arrow shape.

CONCLUSION

This paper has proposed a teaching approach to two goals of visual literacy: learning to appreciate the power of visuals in communication and to express ideas visually. The approach is content-driven in that it encourages students first to choose a lead, then to express that idea in the most appropriate visual/verbal form. The use of a verbal analogy for structuring the message should make the visualization process easier and less intimidating. Use of the

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gestalt principle of consistency, and its polar opposite, contrast, discourages creative ambiguity. Applying the principles of attraction and continuity discourages carelessness and imprecision in layout. The simplicity and universality of gestalt makes its use relevant to teaching creativity of any sort. Where it can help to integrate the visual and verbal aspects of messages, it can only enhance the effectiveness of total communication.

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